BEST AVAILABLE COPY

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY	DEC 19
To: CATHY KODROFF HOWSON AND HOWSON SRPING HOUSE CORPORATE CENTER P.O. BOX 457 SPRINGS HOUSE, PA 19477	PCT NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION
	(PCT Rule 44.1)
	Date of mailing (day/month/year) 16 DFC 2005
Applicant's or agent's file reference UPN-Q3355PCT	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US05/01768	International filing date (day/month/year) 21 January 2005 (21.01.2005)
Applicant THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA	
The applicant is hereby notified that the international search have been established and are transmitted herewith. Filing of amendments and statement under Article 19: The applicant is entitled, if he so wishes, to amend the clair	th report and the written opinion of the International Searching Authority 3/11/10 0 (Art 1) ms of the international application (see Rule 46):
	normally two months from the date of transmittal of the international
Where? Directly to the International Bureau of WIPO, 1211 Geneva 20, Switzerland, Facsimile No.:	
For more detailed instructions, see the notes on the ac	
2. The applicant is hereby notified that no international search Article 17(2)(a) to that effect and the written opinion of the	n report will be established and that the declaration under International Searching Authority are transmitted herewith.
3. With regard to the protest against payment of (an) additi	ional fee(s) under Rule 40.2, the applicant is notified that:
the protest together with the decision thereon has been request to forward the texts of both the protest and the	n transmitted to the International Bureau together with the applicant's e decision thereon to the designated Offices.
no decision has been made yet on the protest; the app	licant will be notified as soon as a decision is made.
Bureau. If the applicant wishes to avoid or postpone publication, a	the international application will be published by the International anotice of withdrawal of the international application, or of the priority 0bis.1 and 90bis.3, respectively, before the completion of the technical
The applicant may submit comments on an informal basis on International Bureau. The International Bureau will send a copy	the written opinion of the International Searching Authority to the of such comments to all designated Offices unless an international These comments would also be made available to the public but not
examination must be filed if the applicant wishes to postpone the some Offices even later); otherwise, the applicant must, within 20 into the national phase before those designated Offices.	of some designated Offices, a demand for international preliminary entry into the national phase until 30 months from the priority date (in 0 months from the priority date, perform the prescribed acts for entry
In respect of other designated Offices, the time limit of 30 months	(or later) will apply even if no demand is filed within 19 months. oplicable time limits, Office by Office, see the PCT Applicant's Guide,
Volume II, National Chapters and the WIPO Internet site.	l l
Name and mailing address of the ISA/ US	Authorized officer January Shortmany
Mail Stop PCT, Attn: ISA/US Commissioner for Patents	Suzanne M. Mayer, Ph.D.
P.O. Box 1450 Alexandria, Virginia 22313-1450	Telephone No. 571-272-1600
Facsimile No. (571) 273-3201 Form PCT/ISA/220 (January 2004)	(S _i

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference UPN-Q3355PCT	FOR FURTHER ACTION 28 V	R see Form PCT/ISA/220 as well as, where applicable, item 5 below.			
International application No. PCT/US05/01768	International filing date (day/mont 21 January 2005 (21.01.2005)	(Earliest) Priority Date (a 23 January 2004 (23.01.2			
Applicant THE TRUSTEES OF THE UNIVERSITY	OF PENNSYLVANIA				
1. Basis of the Report	transmitted to the International But of a total of sheets. by a copy of each prior art docume	nt cited in this report.	the applicant		
	international search was carried out application in the language in which				
a translation of the	e international application into		s the language		
b. With regard to any nucleoti	de and/or amino acid sequence dis	losed in the international application	, see Box No. I.		
	unsearchable (See Box No. II)				
3. Unity of invention is lacking 4. With regard to the title,	g (See Box No. III)				
the text is approved as subm	itted by the applicant.				
the text has been established	by this Authority to read as follows	•			
5. With regard to the abstract,		•			
the text is approved as subm	• • • • • • • • • • • • • • • • • • • •				
· —		withority as it appears in Box No. IV nal search report, submit comments to			
6. With regard to the drawings, a. the figure of the drawings to be as suggested by the	published with the abstract is Figure	No			
	apphicant. Authority, because the applicant faile	I to suggest a figure.			
	Authority, because this figure better of	•			
b. none of the figures is to be p	ublished with the abstract.				

Form PCT/ISA/210 (first sheet) (April 2005)

b

PCT/US05/01768

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)
With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of: a. type of material
a sequence listing table(s) related to the sequence listing
b. format of material
on paper
in electronic form
c. time of filing/furnishing
contained in the international application as filed
filed together with the international application in electronic form furnished subsequently to this Authority for the purposes of search
2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:
,

PCT/US05/01768

Box No. II	Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)
This internati	onal search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1.	Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely.
2.	Claims Nos.: 9-15 because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically: Claims 9-15 were unsearchable as they are dependent upon 'any of claims 1-8; where there is no claim 3.
3.	Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box No. III	Observations where unity of invention is lacking (Continuation of item 3 of first sheet)
This Internat	onal Searching Authority found multiple inventions in this international application, as follows:
1.	As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. Remark on	No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: Protest The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee. The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation. No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet(2)) (April 2005)

PCT/US05/01768

IPC(7) US CL According to	SIFICATION OF SUBJECT MATTER : C07K 1/00, 14/00; C07H 21/02, 21/04; A61K 3 : 530/350, 827; 536/23.1-23.5; 514/44 International Patent Classification (IPC) or to both nat DS SEARCHED	•	-	
Minimum do U.S. : 53	cumentation searched (classification system followed b 0/350, 827; 536/23.1-23.5; 514/44			
Documentation	on searched other than minimum documentation to the	extent that such documents are included i	n the fields searched	
BioSci, Medi	ta base consulted during the international search (nam cine, Caplus, Medline (in Dialog), PTO internal, Sequ n, dystrophin-like protein, DLP, DRP.	e of data base and, where practicable, sear tence databases-PTO internal and NPL: ut	rch terms used) rophin, dystrophin-	
C. DOCT	UMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap		Relevant to claim No.	
х	US 6,518,413 B1 (TINSLEY et al.) 11 February 200 12-17.		1,2,4,5,7-8 and 16-17	
Α	WO 01/25461 A1 (BURTON et al.) 12 April 2001 (12.04.2001), Abstract and claims 1-10.	7-8	
Α	GILBERT et al., Improved Performance of a Fully Gr Two Full-Length Dystrophin cDNAs Regulated by a October 2002. Vol. 6, No. 4, pp. 501-509. p. 502, 2n and p. 507, 1st column, last two paragraphs.	Strong Promoter. Molecular Therapy.	1,2,4,5,7,8,16 and 17	
L	VAN DEUTEKOM et al., Advances in Duchenne M Nature Reviews Genetics. October 2003. Vol. 4, pp. only has two hinge regions.		2	
L A	WINDER et al. Dystrophin and Utrophin: The Missis pp. 27-33. See p. 28, 1st column, 1st line. BARANOV et al. The Current State and Prospects of Muscular Dystrophy Worldwide and in Russia. Russi No. 8, pp. 868-875. Entire Document.	f the Gene Therapy of Duchenne	2 1,2, 4-8 and 16-17	
	<u> </u>			
	documents are listed in the continuation of Box C.	See patent family annex.		
"A" document	pecial categories of cited documents: t defining the general state of the art which is not considered to be of	"T" later document published after the inte date and not in conflict with the applic principle or theory underlying the inve-	ation but cited to understand the	
•	relevance plication or patent published on or after the international filing date	"X" document of particular relevance; the considered novel or cannot be consider when the document is taken alone		
"L" document establish specified)	t which may throw doubts on priority claim(s) or which is cited to the publication date of another citation or other special reason (as	"Y" document of particular relevance; the considered to involve an inventive step with one or more other such document	when the document is combined	
"O" documen	t referring to an oral disclosure, use, exhibition or other means	obvious to a person skilled in the art		
	t published prior to the international filing date but later than the late claimed	"&" document member of the same patent is	-	
ł	ctual completion of the international search	Date of mailing of the international sear 1 to DE (200 Authorized officer Suzanne M. Mayer, Ph.D.	ch report } }	
	r 2005 (07.11.2005) ailing address of the ISA/US	Authorized officer	In New 1	
1	il Stop PCT, Attn: ISA/US	Suzanne M Mayer Ph D		
	nmissioner for Patents Box 1450	Suzaime ivi. iviayer, Fil.D.	<u>(</u> .	
Ale	1. Box 1430 xandria, Virginia 22313-1450 5. (571) 273-3201	Telephone No. 571-272-1666		

International application No. PCT/US05/01768

Vol. 360, pp.591-593. Entire Document. A PERKINS et al. The Role Utrophin in the Potential Therapy of Duchenne Muscular Dystrophy. Neuromuscular Disorders. 2002. Vol. 12, pp. S78-S89. Entire Document. A WILSON et al. Up71 and Up140, Two Novel Transcripts of Utrophin That Are Homologues of Short Forms of Dystrophin. Human Molecular Genetics. 1999. Vol. 8, No. 7, pp. 1271-1278. Entire document. A AMANN et al. Utrophin Lacks the Rod Domain Actin Binding Domain of Dystrophin. The Journal of Biological Chemistry. December 1999. Vol. 274, No. 50, pp. 35375-35380. Entire Document. A THENA et al., Cloning and Expression of Full Length Mouse Utrophin: The Differential Association of Utrophin and Dystrophin with AChR Clusters. FEBS Letters. 1996. Vol. 398, pp. 259-264. Entire Document.	Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Dystrophy. Neuromuscular Disorders. 2002. Vol. 12, pp. S78-S89. Entire Document. WILSON et al. Up71 and Up140, Two Novel Transcripts of Utrophin That Are Homologues of Short Forms of Dystrophin. Human Molecular Genetics. 1999. Vol. 8, No. 7, pp. 1271-1278. Entire document. A MANN et al. Utrophin Lacks the Rod Domain Actin Binding Domain of Dystrophin. The Journal of Biological Chemistry. December 1999. Vol. 274, No. 50, pp. 35375-35380. Entire Document. A THENA et al., Cloning and Expression of Full Length Mouse Utrophin: The Differential Association of Utrophin and Dystrophin with AChR Clusters. FEBS Letters. 1996. Vol. 398, pp. 259-264. Entire Document. SQUIRE et al. Prevention of Pathology in mdx Mice by Expression of Utrophin: Analysis Using an Inducible Transgenic Expression System. Human Molecular Genetics. 2002. Vol.	A	TINSLEY et al. Primary Structure of Dystrophin-Related Protein. Nature. December 1992. Vol. 360, pp.591-593. Entire Document.	1,2, 4-8 and 16-1
of Short Forms of Dystrophin. Human Molecular Genetics. 1999. Vol. 8, No. 7, pp. 1271- 1278. Entire document. AMANN et al. Utrophin Lacks the Rod Domain Actin Binding Domain of Dystrophin. The Journal of Biological Chemistry. December 1999. Vol. 274, No. 50, pp. 35375-35380. Entire Document. ATHENA et al., Cloning and Expression of Full Length Mouse Utrophin: The Differential Association of Utrophin and Dystrophin with AChR Clusters. FEBS Letters. 1996. Vol. 398, pp. 259-264. Entire Document. SQUIRE et al. Prevention of Pathology in mdx Mice by Expression of Utrophin: Analysis Using an Inducible Transgenic Expression System. Human Molecular Genetics. 2002. Vol.	Α	PERKINS et al. The Role Utrophin in the Potential Therapy of Duchenne Muscular Dystrophy. Neuromuscular Disorders. 2002. Vol. 12, pp. S78-S89. Entire Document.	1,2, 4-8 and 16-1
Journal of Biological Chemistry. December 1999. Vol. 274, No. 50, pp. 35375-35380. Entire Document. A THENA et al., Cloning and Expression of Full Length Mouse Utrophin: The Differential Association of Utrophin and Dystrophin with AChR Clusters. FEBS Letters. 1996. Vol. 398, pp. 259-264. Entire Document. SQUIRE et al. Prevention of Pathology in mdx Mice by Expression of Utrophin: Analysis Using an Inducible Transgenic Expression System. Human Molecular Genetics. 2002. Vol.	A	of Short Forms of Dystrophin. Human Molecular Genetics. 1999. Vol. 8, No. 7, pp. 1271-	1,2, 4-8 and 16-1
Association of Utrophin and Dystrophin with AChR Clusters. FEBS Letters. 1996. Vol. 398, pp. 259-264. Entire Document. A SQUIRE et al. Prevention of Pathology in mdx Mice by Expression of Utrophin: Analysis Using an Inducible Transgenic Expression System. Human Molecular Genetics. 2002. Vol.	A	Journal of Biological Chemistry. December 1999. Vol. 274, No. 50, pp. 35375-35380. Entire	1,2, 4-8 and 16-1
Using an Inducible Transgenic Expression System. Human Molecular Genetics. 2002. Vol.	Α	Association of Utrophin and Dystrophin with AChR Clusters. FEBS Letters. 1996. Vol. 398,	1,2, 4-8 and 16-1
	A	Using an Inducible Transgenic Expression System. Human Molecular Genetics. 2002. Vol.	1,2, 4-8 and 16-1
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PATENT COOPERATION TREATY

From the	IOD ITV		•
To: CATHY KODROFF	IONII I		PCT
HOWSON AND HOWSON SRPING HOUSE CORPORATE CENT P.O. BOX 457 SPRINGS HOUSE, PA 19477	EŖ		UTTEN OPINION OF THE ONAL SEARCHING AUTHORITY
			(PCT Rule 43bis.1)
		Date of mailing (day/month/year)	16 DEC 2005
Applicant's or agent's file reference		FOR FURTHER	ACTION See paragraph 2 below
UPN-Q3355PCT	T. t	(d=/month/nom)	
International application No.	International filing date		Priority date (day/month/year)
PCT/US05/01768 International Patent Classification (IPC)	21 January 2005 (21.01		23 January 2004 (23.01.2004)
			50 (100 1 00 5
IPC(7): C07K 1/00, 14/00; C07H 21/02 Applicant	, 21/04; A61K 31/70 and U	IS Cl.: 530/350, 827;	5. 23.1-23.5; 514/44
1	ry of dennicyi vania		
THE TRUSTEES OF THE UNIVERSIT	I Y OF PENNSTLVANIA		
1. This opinion contains indications re	lating to the following iten	ns:	
Box No. I Basis of the	ne opinion		
Box No. II Priority			
Box No. III Non-estab	lishment of opinion with re	egard to novelty, inve	ntive step and industrial applicability
Box No. IV Lack of un	nity of invention		
Box No. V Reasoned applicabil	statement under Rule 43 <i>bi</i> . ity; citations and explanation	s.1(a)(i) with regard to ons supporting such s	o novelty, inventive step or industrial tatement
Box No. VI Certain do	cuments cited		
Box No. VII Certain de	fects in the international ap	pplication	
Box No. VIII Certain ob	servations on the internation	onal application	
2. FURTHER ACTION			
International Preliminary Examin	ng Authority ("IPEA") e the IPEA and the chosen	except that this does IPEA has notified the	be considered to be a written opinion of the not apply where the applicant chooses an he International Bureau under Rule 66.1bis(b) ered.
If this opinion is, as provided abo IPEA a written reply together, who of Form PCT/ISA/220 or before the	ere appropriate, with amen-	dments, before the ex	PEA, the applicant is invited to submit to the contraction of 3 months from the date of mailing whichever expires later.
For further options, see Form PCT/	TSA/220.		
3. For further details, see notes to For	m PCT/ISA/220.		
Name and mailing address of the ISA/	US Date of compl	etion of this opinion	Authorized officer Jumbel Shu
Mail Stop PCT, Attn: IS A/US		2005 (07.11.2005)	Suzanne M. Mayer, Ph.D.
Commissioner for Patents P.O. Box 1450	0/ November	2005 (07.11.2005)	
Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201			Telephone No. 571-272-1600
Form PCT/ISA/237 (cover sheet) (April 2	2005)		

International application No.	_	
PCT/US05/01768		

Box N	o. I Basis of this opinion	
1. With	regard to the language, this opinion has been established on the basis of:	
\boxtimes	the international application in the language in which it was filed	
	a translation of the international application into, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).	
2. With inven	regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed ation, this opinion has been established on the basis of:	
a.	type of material	
	a sequence listing	
	table(s) related to the sequence listing	
b.	format of material	
	on paper	
	in electronic form	
c.	time of filing/furnishing	
	contained in the international application as filed.	
	filed together with the international application in electronic form.	
	furnished subsequently to this Authority for the purposes of search.	
3.	In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.	
4. Addit	tional comments:	
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		_



Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
the entire international application
claims Nos. 9-15
because:
the said international application, or the said claim Nos relate to the following subject matter which does not require an international search (specify):
the description, claims or drawings (indicate particular elements below) or said claims Nos. 9-15 are so unclear that no meaningful opinion could be formed (specify):
The claims are dependent upon 'any of claims 1-8'. There is no claim 3 in the application thus no meaningful search of these claims can be made.
the claims, or said claims Nos are so inadequately supported by the description that no meaningful opinion could be formed (specify):
no international search report has been established for said claims Nos.
a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:
furnish a sequence listing on paper complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
furnish a sequence listing in electronic form complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rules 13ter.1(a) or (b).
a meaningful opinion could not be formed without the tables related to the sequence listings; the applicant did not, within the prescribed time limit, furnish such tables in electronic form complying with the technical requirements provided for in Annex C-bis of the Administrative Instructions, and such tables were not available to the International Searching Authority in a form and manner acceptable to it.
the tables related to the nucleotide and/or amino acid sequence listing, if in electronic form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
See Supplemental Box for further details.
Form PCT/(SA/237 (Roy No. III) (April 2005)

International appli PCT/US05/01768

Claims 1,2,4,5,7-8 and 15-16 NC	Statement			
Inventive step (IS) Claims 1,2,4,5,7-8 and 15-16 Industrial applicability (IA) Claims 1,2,4-5,7-8 and 15-16 Industrial applicability (IA) Claims 1,2,4-8 and 15-16 NC Citations and explanations: aims 1,2,4-8 and 15-16 AC Claims 1,2,4-8 and 15-16 YE Claims 1,2,4-8 and 15-16 NC Citations and explanations: aims 1,2,4-8 and 15-16 NC Citations and explanations: aims 1,2,4-8 and 15-16 NC Claims 1	Novelty (N)	Claims	6	YE
Claims 1,2,4,5,7-8 and 15-16		Claims	1,2,4,5,7-8 and 15-16	NO
Claims 1,2,4,5,7-8 and 15-16	Inventive sten (IS)	Claims	6	YE
Claims 1,2,4-8 and 15-16 Claims 1,2,4-8 and 15-16 No Claims 1,2,4-8, 7-8 and 16-17 lack novelty and inventive step under PCT Article 33(2) and 33(3) as being anticipated by TINSLEY (US 6,518,413). Utrophin is a 3,433 amino acid protein with several different regions and domains and which is usually found in ascle tissues. Tinsley et al. teach a DNA molecule that is a utrophin "mini-gene" which expresses a polypeptide that encodes for a 08 amino acid protein which possesses the N-terminal amino acid domain, and the C-terminal amino acid domain, but which is simple the anipority of the central domain (approximately 1500 amino acids - attached amino acid sequence alignment of SEQ ID N d SEQ ID No: 8 of Tinsley et al.). The polynucleotide is clone is placed under the control of the human skeletal alpha-actin (HAS omoter and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention and with adenovirus or retrovirus vectors (column 10, lines 1-3). Claim 2 is included in this rejection because the prior art ggests/teaches that utrophin only has two hinge regions. This is evidenced by van Deutekom et al. (Figure 1, p.776) and Winder et "similarly utrophin is thought to contain 22 repeats and two hinges." (1 ^{nt} column, 1 ^{nt} line, p.28). The microutrophin DNA and thus possess industrial applicability because the subject atter claimed can be made or used in industry. The microutrophin DNA and encoded proteins described in this application would be attered alignment of the surface of the su	mvenave step (15)			NC
Claims 1,2,4-8 and 15-16 Claims 1,2,4-8 and 15-16 No Claims 1,2,4-8, 7-8 and 16-17 lack novelty and inventive step under PCT Article 33(2) and 33(3) as being anticipated by TINSLEY (US 6,518,413). Utrophin is a 3,433 amino acid protein with several different regions and domains and which is usually found in ascle tissues. Tinsley et al. teach a DNA molecule that is a utrophin "mini-gene" which expresses a polypeptide that encodes for a 08 amino acid protein which possesses the N-terminal amino acid domain, and the C-terminal amino acid domain, but which is simple the anipority of the central domain (approximately 1500 amino acids - attached amino acid sequence alignment of SEQ ID N d SEQ ID No: 8 of Tinsley et al.). The polynucleotide is clone is placed under the control of the human skeletal alpha-actin (HAS omoter and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention and with adenovirus or retrovirus vectors (column 10, lines 1-3). Claim 2 is included in this rejection because the prior art ggests/teaches that utrophin only has two hinge regions. This is evidenced by van Deutekom et al. (Figure 1, p.776) and Winder et "similarly utrophin is thought to contain 22 repeats and two hinges." (1 ^{nt} column, 1 ^{nt} line, p.28). The microutrophin DNA and thus possess industrial applicability because the subject atter claimed can be made or used in industry. The microutrophin DNA and encoded proteins described in this application would be attered alignment of the surface of the su	Industrial analisability (TA)	Claims	1.2.4.8 and 15.16	VE
aims 1,2,4,5, 7-8 and 16-17 lack novelty and inventive step under PCT Article 33(2) and 33(3) as being anticipated by TINSLEY (US 6,518,413). Utrophin is a 3,433 amino acid protein with several different regions and domains and which is usually found in inscle tissues. Tinsley et al. teach a DNA molecule that is a utrophin "mini-gene" which expresses a polypeptide that encodes for a 08 amino acid protein which possesses the N-terminal amino acid domain, and the C-terminal amino acid domain, but which is ssing the majority of the central domain (approximately 1500 amino acids - attached amino acid sequence alignment of SEQ ID Noth SEQ ID Noth 8 of Tinsley et al.). The polynucleotide is clone is placed under the control of the human skeletal alpha-actin (HAS) amoter and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention ed with adenovirus or retrovirus vectors (column 10, lines 1-3). Claim 2 is included in this rejection because the prior art gegests/teaches that utrophin only has two hinge regions. This is evidenced by van Deutekom et al. (Figure 1, p.776) and Winder et "similarly utrophin is thought to contain 22 repeats and two hinges." (1 st column, 1 st line, p.28). aim 6 meets the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest DNA that encodes a otein of SEQ ID Nos: 4, 2 and 5.	industrial applicability (IA)			
aims 1,2,4,5, 7-8 and 16-17 lack novelty and inventive step under PCT Article 33(2) and 33(3) as being anticipated by TINSLEY (US 6,518,413). Utrophin is a 3,433 amino acid protein with several different regions and domains and which is usually found in iscle tissues. Tinsley et al. teach a DNA molecule that is a utrophin "mini-gene" which expresses a polypeptide that encodes for a 08 amino acid protein which possesses the N-terminal amino acid domain, and the C-terminal amino acid domain, but which is sing the majority of the central domain (approximately 1500 amino acids - attached amino acid sequence alignment of SEQ ID Notate SEQ ID Notate and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention and with adenovirus or retrovirus vectors (column 10, lines 1-3). Claim 2 is included in this rejection because the prior art aggests/teaches that utrophin only has two hinge regions. This is evidenced by van Deutekom et al. (Figure 1, p.776) and Winder et "similarly utrophin is thought to contain 22 repeats and two hinges." (1st column, 1st line, p.28). The majority of the central and invention acid domain, and the C-terminal amino acid domain, but which is usually found in the series and the control of the human skeletal alpha-actin (HAS) aminos are all properties. The DNA of the invention and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention and regulatory regions (column 16, lines 55-62). This promoter is a muscle specific promoter. The DNA of the invention of the lines of t				
	similarly utrophin is thought to contain 22 repe	eats and two hin	ges." (1 st column, 1 st line, p.28).	
	otein of SEQ ID Nos: 4, 2 and 5. aims 1-2, 4-8 and 16-17 meet the criteria set out interclaimed can be made or used in industry. The	in PCT Article 3	3(4), and thus possess industrial applicabil DNA and encoded proteins described in t	ity because the subject his application would l
	otein of SEQ ID Nos: 4, 2 and 5. aims 1-2, 4-8 and 16-17 meet the criteria set out interclaimed can be made or used in industry. The	in PCT Article 3	3(4), and thus possess industrial applicabil DNA and encoded proteins described in t	ity because the subject his application would l
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	otein of SEQ ID Nos: 4, 2 and 5. aims 1-2, 4-8 and 16-17 meet the criteria set out interclaimed can be made or used in industry. The	in PCT Article 3	3(4), and thus possess industrial applicabil DNA and encoded proteins described in t	ity because the subject his application would l
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	otein of SEQ ID Nos: 4, 2 and 5. aims 1-2, 4-8 and 16-17 meet the criteria set out interclaimed can be made or used in industry. The	in PCT Article 3	3(4), and thus possess industrial applicabil DNA and encoded proteins described in t	ity because the subject his application would l

International application No.

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

The description is objected to as containing the following defect(s) under PCT Rule 66.2(a)(iii) in the form or contents thereof: The first page of the specification is missing.

The Brief Description of the Drawings section contains an error on p. 2, line 19. This line refers to Figures 3A-2K, it should refer to Figures 3A-3K.

Claims 1-17 are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof: There is no claim # 3 in the claim set. Thus the claims are incorrectly numbered after claim 2 and onwards.

Form PCT/ISA/237 (Box No. VII) (April 2005)

International application No PCT/US05/01768

Box No.	VIII	Certain	observations	on the	international	app	lication
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The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 2-8 and 16-17 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 2-8 and 16-17 are indefinite for the following reason(s): The independent claim is drawn to a DNA molecule. However, the inconsistent use of DNA terminology and protein (e.g. amino acid) terminology renders the claims indefinite. For example, in claim 6, the recitation of a nucleic acid according to claim 1, where the microutrophin is selected from the group having the amino acid sequence of SEQ ID No: 4.

Correct claim construction in this circumstance dictates that the nucleic acid must encode for a protein having an amino acid sequence.

Claim 6 is objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claim 6 is indefinite for the following reason(s): Claim 6 recites a microutrophin selected from the group consisting of human, canine and mouse microutrophin having the amino acid sequences of SEQ ID Nos: 4, 2 and 5, respectively. However, "microutrophin" is not a naturally occurring protein. Instead the term is defined by Applicants themselves and it they are non-naturally occurring protein derived from human, canine and mouse, but not endogenous. Thus, claims a human microutrophin having the amino acid sequence of SEf₂ ID No: 4, for example, is wholly inaccurate and misleading.

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